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COMBATING the TERROR of TERRORISM

The psychological damage caused by the attacks of September 11 mirrored the physical destruction and showed that protecting the public's mental health must be a component of the national defense

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On September 11, 2001,

the U.S. suffered the worst terrorist attacks in its history.

The destruction of the World Trade Center's twin towers was quickly followed by bioterrorism, in the form of a series of anthrax-tainted letters that killed five people and shut down the U.S. Capitol. The American response was swift, with war in Afghanistan and major appropriations for military defense. Another reaction was a welcome infusion of funding to bolster the chronically underfinanced national public health infrastructure.

Much of this spending will go toward reinvigorating infectious disease epidemiology, and this effort will improve our capacity both to detect new pathogens and to control infectious disease outbreaks. Preparedness not only defends the population against biological attacks but puts the medical community in a better position to react to natural outbreaks, such as HIV and West Nile virus. Another important response to terrorism, however, is attention to a vital medical component of national defense: the public's mental health.

"The purpose of these weapons is to wreak destruction via psychological means—by inducing fear, confusion, and uncertainty in everyday life," wrote Simon Wessely of Guy's, King's and St. Thomas's School of Medicine, London, and his colleagues in a *British Medical Journal* article on chemical and biological weapons. The same logic surely also informs physical attacks. In the terrorists' cold calculations, producing casualties is a secondary consideration to the more important goal: that the news of the horrific event gets widely disseminated and engenders a state of fear and anxiety throughout the population. An appropriate response, therefore, requires a determined effort to help the population withstand such attacks on the psyche. We must defend the intangible.

The World Trade Center, a soaring symbol of New York City and the nation, illustrates this point. The monumental structures' destruction, witnessed by millions—the burning towers were visible more than 20 miles away, with millions more watching on television (as well as the attack on another potent symbol, the Pentagon)—was clearly designed for maximum psychological effect. The devastation immediately generated a profound, widespread sense of vulnerability. Surprise was an additional element that magnified the psychological shock.

The anthrax perpetrator, still unknown as this article went to press, also carefully chose targets for maximum psychological influence: the contaminated letters went to newspapers, magazines, television stations and prominent members of the U.S. Congress. Though still unquantified, epidemic confusion and anxiety probably beset millions who wondered, "Could opening my mail kill me?" The public health system was overwhelmed with requests for antibiotics and nasal swab testing and with examinations of thousands of powder samples

across the country. And yet the vast majority of people experiencing anxiety probably had no appreciable risk of exposure to anthrax. Only 22 cases of illness were confirmed nationwide, with five unfortunate victims dying. Traffic accidents kill 115 people in the U.S. daily, but the anthrax incidents inflicted social disruption and psychological damage that traffic tragedies do not.

These examples make it clear that protecting mental health must be a central element in any terror defense. The first step in formulating a comprehensive strategy is to fully understand the problem. To that end, we considered the initial studies evaluating the psychological ramifications of the September 11 attacks, as well as other studies devoted to previous terrorism incidents and natural disasters that have traumatized large populations.

Assessing the Trauma

IN A SO-CALLED NEEDS ASSESSMENT commissioned by New York State, authored by two of us (Herman and Susser) with Chip J. Felton of the New York State Office of Mental Health, we set out to estimate the immediate psychological aftermath of the terrorist events. Our team also included colleagues from the New York City Department of Mental Health, the New York State Psychiatric Institute, the Nathan S. Kline Institute for Psychiatric Research and the New York Academy of Medicine. It is important to note that although we considered those who were directly exposed to the attacks, such as survivors of the twin towers and people who lost loved ones, the primary population we described was the general public of New York City.

For the needs assessment, we based our estimates of the psychological trauma of September 11 on three main sources. The first source was the existing literature on epidemiological disaster research, including the work of Fran H. Norris of Georgia State University. In March, Norris released a review in which she analyzed more than 200 articles, published between 1981 and 2001, concerned with the psychological consequences of 160 natural and purposeful disasters that affected 60,000 people worldwide. The second source was the research gauging the reaction of the general public in the area near the Oklahoma City bombing of 1995. The third source comprised two studies quickly conducted in New York City that examined the short-term psychological effects of the tower attacks. A study done by the New York City Department of Health in collaboration with the Centers for Disease Control and Prevention focused on some 400 residents of neighborhoods in close proximity to the World Trade Center. We also had prepublication access to a broader study that concentrated on all residents of Manhattan below 110th Street, approximately six miles north of the World Trade Center. This study, which appeared this past March in the *New England Journal of Medicine,* was led by Sandro Galea of the Center for Urban Epidemiologic Studies at the New York Academy of Medicine (who is completing his doctorate in our Columbia University department of epidemiology).

The Galea study analyzed telephone interviews with 1,008 Manhattan residents between October 16 and November 15, in which participants were questioned about their exposure to the events of September 11 and any psychological symptoms since that date. Galea and his colleagues found that "7.5 percent reported symptoms consistent with a diagnosis of current PTSD [post-traumatic stress disorder] related to the attacks, and 9.7 percent reported symptoms consistent with current depression." These percentages may be extrapolated to 67,000 Manhattanites with PTSD and 87,000 with depression. Proximity increased the reaction to the attacks: the rate of PTSD in those living close to the World Trade Center jumped to 20 percent.

Of course, some PTSD and depression existed prior to September 11. The Galea study was able to distinguish PTSD specifically related to the attacks, however, and revealed that baseline rates of PTSD roughly tripled in the entire study population during the weeks after the event.

(Another sign of increased stress after September 11 was the tendency to self-medicate. A study released in June by the National Institutes of Health's National Institute on Drug Abuse showed that cigarette smoking and alcohol and marijuana use all increased in the weeks subsequent to the attacks.)

These figures are consistent with the data related to the worst previous terrorist attack in the U.S., the bombing of the Alfred P. Murrah Federal Building in Oklahoma City. Ginny Sprang of the University of Kentucky determined that 7.8 percent of 145 city residents who were not close to the building had PTSD. Carol S. North of the Washington University School of Medicine and her colleagues found PTSD in 34 percent of 182 survivors who had been in or near the building.

With the intial reports on New York City and the remaining literature on Oklahoma City and general disaster survival in hand, we prepared our evaluation of the psychological reaction to the attacks for the New York

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State needs assessment. That document contains individual estimates for the hardest-hit groups, such as surviving victims and the families of those killed, as well as rescue workers, Manhattan dwellers, other residents of the city, suburbanites and the remaining citizens of the state. The bottom line: even when making the most conservative estimates based on available data, we concluded that a minimum of approximately 422,000 New Yorkers experienced PTSD as a result of September 11.

The ongoing state assessment also drew on a separate study for the New York City Board of Education specifically examining city schoolchildren between grades four and 12. Christina Hoven of the Mailman School of Public Health of Columbia University designed the study, in which 8,266 students were surveyed about their reactions to the New York City attacks. The data, released in early May, indicated that 10.5 percent of the city's 710,000 public school students suffered from PTSD after September 11.

The Hoven study also detected substantial frequencies of other disorders, such as agoraphobia, the fear of open places. (The Galea study specifically reported on PTSD and clinical depression and not other psychological conditions, such as anxiety and subclinical depression.) Our needs assessment estimate of 422,000 cases of PTSD throughout the state is thus truly a minimum estimate of psychological trauma. Untold millions who witnessed the attacks through the media were surely shaken as well. In addition, the effects of terrorism on those already suffering from psychological conditions must be assumed to have been especially profound.

Bolstering Defenses

WITH THE SCOPE of the problem now clear, certainly the protection of the public's mental health must be a central element in any effective defense against terrorism. And yet public health leaders have, for the most part, failed to advocate strongly the integration of mental health considerations into the overall response to the terrorist threat. Medical schools, health insurance systems, disability legislation and other arenas also generally neglect the public mental health. The CDC, for example, has traditionally paid scant attention to public mental health, despite World Health Organization findings that depression is the fourth leading cause of disease and disability worldwide. And the WHO estimates that by 2020 depression will be the world's second leading cause of premature death and disability.

On the other hand, two encouraging signs of the recognition of mental illness as a public health concern came on May 21. First, the U.S. Preventive Services Task Force, sponsored by the Department of Health and Human Services's Agency for Healthcare Research and Quality, recommended that primary care physicians use a simple series of questions to screen adult patients for depression. Second, the Federal Emergency Management Agency announced a $132-million grant to continue funding Project Liberty, a program administered by the New York State Office of Mental Health that offers free counseling—but not treatment—to those most affected by September 11.

So what can be done to limit the propagation of fear, confusion and demoralization that leads to PTSD, depression and other conditions, especially in the face of a public mental health system that must still be considered inadequate? Apart from the specific literature cited previously, relatively little research has examined the psychological effects of terrorism; even less is documented on how to protect people from these effects. A federal funding priority, therefore, should be to fully document the mental health consequences of September 11 and to devise and test strategies to minimize those consequences.

Until those studies can be done, however, the limits of the database should not limit our actions, which can be based on reasonable assumptions regarding the public interest and how best to serve it. For the needs assessment, we created guidelines aimed at protecting mental health in the first weeks after a disaster. A key aspect is the availability of trained mental health workers, to be deployed in a crisis. An example is a major initiative organized by the New York City Consortium for Effective Trauma Treatment. A panel of nationally recognized experts in current PTSD treatment techniques is training 60 clinical faculty members from numerous city mental health facilities. These faculty in turn will train local clinicians practicing privately or in community settings or employee assistance programs. The preparation emphasizes the need to reach out to school clinicians, primary health care providers and special education teachers.

Just as the military includes a large reserve force that can be called into action during crises, we also propose the creation of a mental health reserve corps made up of retired or part-time mental health professionals who would contribute their time and expertise on an emergency basis. Reserve corps members would diagnose individuals with clinical cases of mental disorders and offer them appropriate treatment, whether cognitive-behavioral therapy, pharmacotherapy, family therapy or a variety of other techniques shown to be effective. They could also take part in programs to disseminate information and to foster outreach to the public. Most people would not require professional assistance but would be helped by the understanding that their fear and sadness were normal reactions to a devastating event.

Marcelle Layton, a leader in bioterrorism preparedness with the New York City Department of Health, notes that social cohesion can be promoted by educating the community about potential threats and by informing the public as to the nature of the official response. Inspiring the populace can also be a great positive influence.

Political leaders can play a significant role in caring for the public's mental health, because a sense of community and social cohesion fortifies people against terror's fundamental goal of inflicting psychological trauma. (In fact, a growing body of epidemiological literature suggests that social cohesion, or "social capital," confers *overall* protection against morbidity and mortality.)

A primary component of social cohesion and morale, probably deeply based in evolutionary psychology, is the leadership of a single, trusted authority figure. One of history's foremost examples of the power of such social bonding dates to the 1940 Battle of Britain in World War II. Nazi bombings were designed to kill some but demoralize all. While concurrently attempting to fortify a weak air defense, Prime Minister Winston Churchill set himself the task of strengthening the resolve of his people to endure the psychological fallout of the air raids. His inspiring radio addresses, which promoted a sense of common purpose, in effect were public mental health interventions.

Likewise in New York City in the weeks after the attacks, Mayor Rudolph Giuliani well served a stricken populace, as he, too, took very visible command to personally keep the citizenry informed and to inspire with a sense of control and optimism. During the Scud missile attacks of the 1991 Gulf War, Israel also employed the paradigm of a single, familiar voice keeping the public informed with clear and consistent messages. In the midst of the attacks, most radio stations converged their broadcasts, with one senior official updating listeners.

Unless carefully delivered, however, statements by public officials and media representatives can arouse fear instead of alleviating it. Public spokespeople must be articulate and knowledgeable in their crucial roles, and the media should provide full and accurate information in a fashion that will not provoke distress and concern. For example, a comprehensive analysis of a new terrorist threat may be helpful; a 10-second promotional spot in which an anchor says, "New terrorist threat—more at 11" is not. And mixed messages in which government officials alarm us with detail-free "high alerts" but go on to advise us to travel normally and to "go shopping" are most likely counterproductive. (The U.S. Department of Justice's detentions and secretive interrogations of persons of Middle Eastern descent with no links to terrorism likewise disrupt social cohesion.)

In fact, asking the population to do something sacrificial and difficult rather than to consume conspicuously is probably a better way to increase social cohesion. Studies on fraternity hazing and military boot camps show that the shared hardships of members are responsible for much of the esprit de corps to be found in such groups [see "The Science of Persuasion," by Robert B. Cialdini; Scientific American, February 2001]. The scrap metal drives, war bond purchases and other contributions of noncombatants in World War II supported the war effort *and* the population's mental health. And although their principal motivation was to help others, blood donors who lined up at hospitals on the evening of September 11 were also helping themselves cope.

As this article was going to press, preliminary results were released based on additional research by Galea's group. For this study, 2,001 New Yorkers were interviewed by telephone between January 15 and February 21. Their reported symptoms indicated a discernible decrease in the number of study subjects for whom a clinical diagnosis of PTSD could be made. Many affected New Yorkers are clearly recovering naturally, a tribute to the resilience of the human psyche.

Yet also as this article was being prepared for publication, Vice President Dick Cheney and Secretary of Defense Donald Rumsfeld announced that additional terrorist attacks were virtually a certainty. It is therefore incumbent on the federal government to establish mental health teams and to call on them to devise rapid-response strategies. To reach the vast majority of the population, participants must go well beyond health institutions to schools, religious organizations, community groups, the military, and police, fire and emergency workers. We have begun to take steps to protect our lives and property. We must protect and defend our mental health as well. SA

MORE TO EXPLORE

Psychological Impairment in the Wake of Disaster: The Disaster–Psychopathology Relationship. Anthony V. Rubonis and Leonard Bickman in *Psychological Bulletin,* Vol. 109, No. 3, pages 384–399; May 1991.

Psychological Sequelae of the September 11 Terrorist Attacks in New York City. Sandro Galea et al. in *New England Journal of Medicine,* Vol. 346, No. 13, pages 982–987; March 28, 2002.

The Range, Magnitude, and Duration of the Effects of Natural Disasters: A Review of the Empirical Literature. Fran H. Norris et al. A National Center for PTSD fact sheet. **www.ncptsd.org/facts/disasters/fs_range.html**

Crisis counseling is available from Project Liberty at **www.projectliberty.state.ny.us** or at 800-LIFENET (800-543-3638).

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